

What is claimed is:

1. A flats mail autotrayer system comprising:

means for combining multiple small stacks of mailpieces into
a single large stack of mailpieces while maintaining sequence
5 order; and

means for transferring said large stack to a tray.

2. The system of Claim 1, further comprising means for releasably
engaging a tray.

3. The system of Claim 1, further comprising means for conveying
a stream of mailpieces to said means for combining.

4. The system of Claim 1, wherein said means for combining
includes a fork lift assembly.

5. The system of Claim 4, wherein said fork lift assembly is
selectively raised and lowered, and is selectively positionable
into and out of engagement with said large stack during a fork lift
cycle.

6. The system of Claim 1, wherein said means for transferring
includes a plurality of driven rollers.

7. The system of Claim 6, wherein said means for transferring
20 further includes a means for pushing.

8. A method of flats mail autotrayering, comprising the steps of:

combining multiple small stacks of mailpieces into a single large stack of mailpieces while maintaining sequence order via a means for combining; and

transferring said large stack to a tray via a means for
5 transferring.

9. The method of Claim 8, further comprising the step of releasably engaging a tray via a means for latching.

10. The method of Claim 8, further comprising the step of conveying a stream of mailpieces to said means for combining via a means for conveying.

11. *Not proper method step*
The method of Claim 8, wherein said means for combining includes a fork lift assembly.

12. The method of Claim 11, wherein said step of combining includes the step of selectively raising and lowering said fork lift assembly, and selectively positioning said fork assembly into and out of engagement with said large stack during a fork lift cycle.

13. The method of Claim 8, wherein said step of transferring includes the step of driving a plurality of rollers in contact with
20 said large stack.

14. The method of Claim 13, wherein said step of transferring further includes the step of pushing said large stack via a pushing member.

19. The apparatus of Claim 15, wherein said stack accumulator includes a fork lift assembly.

20. The apparatus of Claim 19, wherein said fork lift assembly releasably engages said large stack.

5 21. The apparatus of Claim 20, further comprising a sensor for initiating a fork lift cycle when (said ^{which one?} small stack) advances into said sensor.

22. The apparatus of Claim 21, wherein said fork lift extends under and holds said large stack above (said ^{which?} small stack), retracts when said fork lift cycle is initiated, releasing said large stack onto (said ^{which?} small stack), lowers to a position under said large stack, advances back under said large stack, and raises to lift said large stack to complete said fork lift cycle.

23. The apparatus of Claim 15, wherein said stack accumulator includes a plurality of rollers.

24. The apparatus of Claim 23, wherein said plurality of rollers includes driven bottom rollers and driven side rollers.

25. The apparatus of Claim 23, wherein said plurality of rollers includes a top roller.

20 26. The apparatus of Claim 25, further comprising a stack height limit sensor, said top roller being operatively connected to a pivot arm, said pivot arm raising as successive small stacks are added to said large stack, said pivot arm triggering said stack

height limit sensor upon said large stack reaching a predetermined height.

27. The apparatus of Claim 26, wherein said stack accumulator transfers said large stack to said tray upon said stack height limit sensor being triggered.

28. The apparatus of Claim 27, wherein said plurality of rollers cooperate to transfer said large stack to said tray.

29. The apparatus of Claim 15, wherein said stack accumulator includes a plurality of guides.

30. The apparatus of Claim 29, wherein said plurality of guides includes a side guide assembly.

31. The apparatus of Claim 30, wherein said side guide ^{assembly} is retractable.

32. The apparatus of Claim 30, wherein said side guide ^{assembly} includes high friction belt strips.

33. The apparatus of Claim 29, wherein said plurality of guides includes a rear guide assembly.

34. The apparatus of Claim 33, wherein said rear guide ^{assembly} is a flexible belt.

35. The apparatus of Claim 15, wherein said stack accumulator includes a gate.

36. The apparatus of Claim 15, wherein said stack accumulator includes a pusher arm.

37. The apparatus of Claim 15, wherein said output tray station includes a tray latch assembly.

38. The apparatus of Claim 15, wherein said output tray station includes a tray support ledge.

5 39. The apparatus of Claim 15, wherein said output tray station includes at least one mail guide.

40. A method for combining multiple small stacks of mailpieces into a single large stack of mailpieces and then transferring the large stack to a standard flats mail tray, said method comprising the steps of:

conveying a stream of mailpieces to a stack accumulator via a bridge conveyor;

combining said small stacks of mailpieces into said large stack in a desired sequence via said stack accumulator; and

transferring said large stack to said tray via said stack accumulator.

41. The method of Claim 40, further comprising the step of: releasably engaging a tray in an output tray station proximate said stack accumulator.

20 42. The method of Claim 40, wherein said step of combining includes the step of maintaining a sequence order of the mailpieces in said large stack by placing successive small stacks on the bottom of the large stack.

43. The ^{method} (apparatus) of Claim 42, wherein said step of maintaining a sequence order includes the steps of:

engaging and holding said large stack above a surface of said stack accumulator via a fork lift assembly;

5 advancing said small stack on said surface and under said large stack;

retracting said fork lift assembly to release said large stack onto said small stack;

10 lowering said fork lift assembly to a position below said large stack;

15 advancing said fork lift assembly back under said large stack; and

20 raising said fork lift assembly to lift said large stack to complete a fork lift cycle.

25 44. The method of Claim 43, further comprising the step of sensing an advancing small stack via a sensor to initiate said fork lift cycle.

30 45. The ^{method} (apparatus) of Claim 40, wherein said step of conveying includes the step of driving said small stacks to said stack accumulator via a plurality of belt drives.

46. The method of Claim 40, wherein said step of transferring further includes the step of driving a plurality of rollers in said stack accumulator to transfer said large stack to said tray.

47. The method of Claim 46, further comprising the step of opening
5 a stack transfer gate to allow said large stack to be advanced by said plurality of rollers.

48. The method of Claim 46, further comprising the step of sensing the height of said large stack via a sensor to initiate said step of transferring.

49. The method of Claim 46, further comprising the step of activating a pusher arm to engage and push said large stack to assist in the step of transferring.

50. The method of Claim 41, wherein said step of releasably engaging includes the step of engaging said tray with a tray latch assembly.
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